An Important Amino Acid

- An amino acid with a multitude of benefits for mind and body
- Enhances memory function and improves mood
- Supports muscle growth and repair, improves bone health and helps regulate blood sugar levels

Details
Glycine is the smallest and simplest of amino acids. It is the second most-used amino acid in the synthesis of proteins and enzymes in the body, and acts as an inhibitory and excitatory neurotransmitter in the brain and spinal cord.

Due to its ability to stimulate the production of human growth hormone (hGH), glycine is primarily used to support muscle growth and repair and stimulate youthful effects on metabolism, bone growth and immunity. Glycine’s ability to decrease brain excitability has also made it useful for improving sleep quality as well as mood and emotional symptoms associated with brain disorders such as schizophrenia. Glycine also supports energy production, memory, blood sugar management and prostate health, as shown in several studies.

This supplement benefits gym-goers, athletes, anti-aging enthusiasts, people with poor sleep quality, and those looking for a single supplement with a multitude of benefits. Glycine can also provide mood support for those suffering from mental disorders. AOR’s Glycine comes in a convenient powder form, making high doses easier to take.

Label Info

Discussion
Glycine is the simplest of all amino acids involved in protein synthesis in the body. Research supports
a role for glycine in supporting a wide range of healthy bodily functions, including normal cell growth and development.

**Product Variation**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Size</th>
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<tbody>
<tr>
<td>AOR04065</td>
<td>500 G POWDER</td>
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**Supplements Facts**

<table>
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<tr>
<th>Serving Size: 1 Tablespoon</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Glycine</td>
<td>15 g</td>
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Non-medical ingredients:

one.

**Guarantees**

AOR™ guarantees that all ingredients have been declared on the label. Contains no wheat, gluten, corn, nuts, peanuts, sesame seeds, sulphites, mustard, soy, dairy, eggs, fish or shellfish.

**Adult Dosage**

Take 15-60 g (~ 1-4 servings) daily on an empty stomach, or as directed by a qualified health care practitioner. Consult a health care practitioner for use beyond 6 weeks.

**Cautions**

Consult a health care practitioner prior to use if you are pregnant, breastfeeding or if you are following a low-protein diet. Discontinue use and consult a health care practitioner if digestive discomfort with nausea develops.

**Source**

Pharmaceutical synthesis

**Main Application**

Cognitive support

Neuroprotection

Cellular health

Normal cell growth and differentiation

Mood

Growth hormone release

Glucose metabolism
Bone health

Disclaimer

The information and product descriptions appearing on this website are for information purposes only, and are not intended to provide or replace medical advice to individuals from a qualified health care professional. Consult with your physician if you have any health concerns, and before initiating any new diet, exercise, supplement, or other lifestyle changes.

Research

Background

Glycine is the smallest and simplest of the amino acids. It is the second most-used amino acid in the biosynthesis of proteins and enzymes, it’s essential for the phase-II detoxification of many drugs and chemicals, and for the body’s manufacture of such critical biomolecules as nucleic acids, the high-energy carrier creatine phosphate, and the key antioxidant glutathione.

Glycine, NMDA, and Memory

The N-methyl-D-aspartate (NMDA) receptor is critical for memory development and retention. However, the main activator of this receptor is glutamate, an excitatory amino acid whose excessive stimulation of the NMDA receptor causes a deadly overstimulation of the neuron which eventually burns the brain cell out. Fortunately, there is another site on the NMDA receptor complex which allows glycine to be the activator instead of glutamate. Glycine enhances longterm potentiation of memory without producing neurotoxicity.

Research

Glycine and Growth Hormone (hGH)

For some time, research has been focusing in on the age-related loss of human growth hormone (hGH, or somatotropin) as a major source of the symptoms of aging. hGH helps keep our bones strong, our immune systems vigorous, and our wound-healing abilities optimal. It builds muscle and burns fat. Its levels are high in our youth, when all of these functions are at their peak, and their decline follows the decline in many aspects of youthful function. Less than 6 grams of glycine has been shown to more than triple hGH levels in normal, healthy men and women.

Glucose Metabolism

In one study of healthy men and women, glycine supplementation reduced the total increase in blood sugar after a high intake of glucose by a remarkable 50%. Importantly, this channeling of the glucose surge was not accompanied by any increase in insulin levels, nor did it push fasting glucose levels down into hypoglycemia.

Neurodegenerative Conditions
A study of healthy students and middle-aged men found that glycine supplementation significantly improved memory in all subjects and significantly improved sustained attention in the middle-aged participants. These effects are unique in that they do not involve a stimulant effect and don’t affect mood. Therefore, glycine “is likely to be of benefit in situations where high retrieval of information is needed or when performance is impaired by jet lag, shift work, or disrupted sleep.

**Glycine, NMDA, and Schizophrenia**

Several trials have now shown that high-dose glycine supplementation improves the “negative symptoms” of schizophrenia (such as “flat” emotional expression, mood disturbance, poverty of speech, apathy, and social withdrawal). This is an important result, since most schizophrenia medications only affect the “positive symptoms” of the disease, such as the hallucinations. Glycine also appears to boost the efficacy, and reduce the side-effects, of some schizophrenia medications.

In an animal study discussed in the March 2010 journal called “Neuroreport”, it explained that the inhibitors of the glycine transporter mechanisms improved cognitive function in primates with schizophrenia. However, further research is warranted, glycine is currently being marked as a potential schizophrenia treatment.

**Healthy Cell Activities**

In animal studies, glycine supplementation has been found to promote normal cell growth and directly inhibit the progression of early lesions into larger masses of abnormal cells. This appears to be due to its ability to block the growth of blood vessels that feed unhealthy cells.

**Prostate Health**

Glycine can also help to keep the prostate gland healthy. One study proved that glycine was helpful for men in reducing the symptoms of prostatic hyperplasia.

**Liver and Brain Protection**

An animal study using rodents and included in the 2004 January journal “Die Pharmazie” researched the effects of glycine supplements administered to alcohol fed rats. The investigators discovered that glycine supplemented at 0.6 g per kg of body weight substantially increased antioxidant levels and reduced oxidative stress and in the liver and brain. Blood levels of vitamin E and C were also increased. The authors concluded that glycine has a potential protection of the liver and brain against alcohol-related damage.

**Sleep**

The neurological disease rapid eye movement sleep behavior disorder results in disturbed sleep and creates patient injuries. Additionally, people experiencing this disorder are at an increased risk of developing neurodegenerative diseases later in their life. A study on rodents which was published in the May 2011 edition of the “Journal of Neuroscience” concluded that mice bred to have glycine deficit in their bodies displayed a disorder which had a similar character to rapid eye movement sleep behavior disorder. The research showed that glycine is responsible for carrying out a fundamental role in this disorder and requires additional research to determine whether using this amino acid as a
supplement would be beneficial for improving sleep.

**Market Trends**

Glycine is an amino acid that can be taken as a supplement in order to help reduce blood sugar levels, enhance the memory, and to improve symptoms of cognitive disorders. Some people are also interested in taking glycine in order to improve the health of their bones. Currently, research is being conducted to determine its potential to fight against cancer, which is of interest to many consumers.

**AOR Advantage**

In addition to its more well-known benefits, Glycine has cytoprotective, immunomodulating, and antithrombotic effects. It can suppress inflammatory responses, protect and heal the brain from stroke damage, and improve outcomes after organ transplantation. It has important roles in bone health and as an extracellular signaling molecule.

AOR’s Glycine delivers all the health benefits of this remarkable little molecule in a convenient powder form for flexible dosing.

**References**


**Abstract**

**Effects of an oral mixture containing glycine, glutamine and niacin on memory, GH and IGF-I secretion in middle-aged and elderly subjects.**

Aging is associated with declining activity of the growth hormone-insulin-like growth factor-I (GH-IGF-I) axis and with a decrease in cognitive function. The stimulatory effect of an orally administered nutritional supplement, mainly containing glycine, glutamine and niacin on the GH-IGF-I axis and on mood and cognition was investigated. Forty-two healthy subjects (14 men and 28 women, aged 40-76 years) were enrolled in a randomised, double blind, placebo-controlled trial. They received 5 g of a nutritional supplement or placebo, twice daily orally for a period of 3 weeks. At baseline and after 3 weeks, blood was collected for measurement of serum GH and IGF-I levels and mood and cognitive function were tested. The nutritional supplement ingestion for 3 weeks was found to increase serum GH levels with 70% relatively to placebo, whereas circulating IGF-I levels did not change. Mean GH (/- SD) increased in this group from 3.23 (/- 4.78) to 4.67 mU/l (/- 5.27) (p = 0.03). GH increase was not associated with improvement in mood or memory. Correlation analyses, however, revealed that individual increases in IGF-I, but not GH, were associated with improved memory and vigour. It is concluded that an oral mixture of glycine, glutamine and niacin can enhance GH secretion in healthy middle-aged and elderly subjects.

The effect of combined administration of L-proline and glycine on GH and IRI release in healthy prepuberal children.

Endocrinologie. 1979 Jul-Sep;17(3):201-4.


Proline (100 mg/kg b.w.) was given per os and after 30 minutes 10% glycine was i.v. injected to 25 healthy children of both sexes. A positive response (an increase of over 5 ng/ml of serum level of GH) was found in 21 of the 25 children. The insulin test showed a positive response in 24 of the 25 children. It was concluded that the decrease in glycine dosage from 250 mg/kg b.w. (earlier reports by the same authors) to 100 mg/kg b.w. (present data) is generally compensated by l-proline priming. The IRI serum levels were almost unchanged. By l-proline priming, the glycine test can also be applied to subjects with body weight over 40 kg, in doses of 100 mg/kg b.w. for exploring the secretory reserve of the somatotropic axis.

Immunoreactive insulin (IRI) dynamics in GH-deficient patients following intravenous glycine loading.


Florea I, Popa M, Simionescu L, Ciovirnache M, Ionescu V.
In hypopituitary short-statured patients glycine intravenous injection (250 mg/kg of body weight) provokes a mild and inconstant stimulation of IRI release followed by a significant fall down. Though insignificant (P 0.064), the prevalence of IRI responsive individuals to glycine in the patients group of idiopathic etiology could be of pathophysiological importance.

**Growth hormone release by glycine injected intravenously in 22 healthy sexually immature children.**

*Biomedicine. 1975 Apr 30;23(4):131-3.*

**Popa M, Florea I.**

A solution of 10% glycine (250 mg/kg of body weight) was injected in within 5-10 minutes in 22 healthy, sexually immature children who were previously tested for insulin-induced hypoglycemia. Blood specimens were collected before, 10, 30, 60 and 120 minutes after injection for glucose, HGH and total alpha-amino nitrogen determination. The mean peak post-glycine level of serum HGH was 11.47 /- 1.558 ng/ml (/- SEM) and did not differ significantly from the corresponding post-insulin mean value (15.63 /- 0.247 ng/ml). The highest post-stimulatory mean value (8.88 /- 1.694 ng/ml) was observed 30 minutes after the end of the injection of glycine. Glycine is a reliable GH stimulating agent, which may be tentatively used for detection of hyposomatotropism in children.